UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

PJ WALLBANK SPRINGS, INC.,

Plaintiff,

v.

AMSTEK METAL LLC,

Defendant.
_________________________________/

Case No. 2:06-cv-15645

HONORABLE STEPHEN J. MURPHY, III

OPINION AND ORDER GRANTING IN PART AND DENYING IN PART DEFENDANT'S MOTION FOR SUMMARY JUDGMENT (document no. 81)

The plaintiff in this action, PJ Wallbank Springs, Inc. ("Wallbank"), is engaged in the manufacture of springs, primarily for use by the automobile industry. The defendant, Amstek Metal LLC ("Amstek"), was for a time one of Wallbank's main suppliers of the steel wire from which the springs were made. A contract between the parties for the supply of the wire incorporated, among other documents, a technical specification designated GM186M, governing in part the physical characteristics of the wire. *See* General Motors Engineering Standards, Spring Materials: Chrome Silicon Spring Wire, GM186M (hereinafter "GM186M"), docket no. 81-13. This litigation arises out of an incident that occurred in 2006, in which springs manufactured by Wallbank began breaking before being inserted into autos. Wallbank now claims that the breakage was caused by defects in the wire shipped by Amstek, which rendered it out of conformity with GM186M and other aspects of the parties' contract.

This is Amstek's second motion for summary judgment. Only three claims by Wallbank survived Amstek's first motion. *See* document nos. 34, 38 & 94. Those claims are as follows. First, Wallbank alleges that a substance known as retained austenite was

present in the Amstek wire in proportions greater than what was permitted by the parties' contract, and that the breakage was caused by the austenite. Second, Wallbank argues that the presence of the austenite is proof that the defective wire was processed different than other wire delivered by Amstek, and that such a process change would also be a violation of the parties' contract. Finally, Wallbank asserts that because the wire broke when put to its intended use -- coiling into springs -- it did not conform to the implied warranty of merchantability that it carried under Michigan law.

In the instant motion, Amstek asserts three general arguments not raised in its first motion for summary judgment. The first argument is that Wallbank has not adduced sufficient evidence in discovery to permit a factual finding that the broken springs were in fact made from Amstek wire, instead of wire from another of Wallbank's suppliers, or that if they were made from Amstek wire that the wire was defective. The second argument attacks Wallbank's expert testimony as to the mechanism by which the alleged defects caused the breakage. As will be explained below, Amstek argues that the theories put forth by Wallbank's expert are clearly incapable of accounting for the observed facts in this case, and thus Walbank has failed to carry its burden of proof on the issue of causation. Amstek's third argument goes only to merchantability: it argues that the evidence indicates that its wire was perfectly suited for use in standard spring-making processes, and broke only when processed through Wallbank's unique system. As a result, says Amstek, even if there was a defect in the wire that impaired its usefulness to Wallbank, this did not affect its general merchantability.

For the reasons that follow, the Court decides that Amstek has pointed out deficiencies in Wallbank's case, but views only some of those deficiencies as so fatal to

warrant summary judgment. Accordingly, the latest motion will be granted in part and denied in part.

LEGAL STANDARD – SUMMARY JUDGMENT

Rule 56(c) of the Federal Rules of Civil Procedure provides that summary judgment "should be rendered if the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c). Summary judgment is appropriate if the moving party demonstrates that there is no genuine issue of material fact regarding the existence of an essential element of the nonmoving party's case on which the nonmoving party would bear the burden of proof at trial. *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986); *Martin v. Ohio Turnpike Comm'n*, 968 F.2d 606, 608 (6th Cir.1992).

In considering a motion for summary judgment, the Court must view the facts and draw all reasonable inferences in a light most favorable to the nonmoving party. *60 Ivy St. Corp. v. Alexander*, 822 F.2d 1432, 1435 (6th Cir.1987). The Court is not required or permitted, however, to judge the evidence or make findings of fact. *Id*. at 1435-36. The moving party has the burden of showing conclusively that no genuine issue of material fact exists. *Id*. at 1435.

A fact is "material" for purposes of summary judgment if proof of that fact would have the effect of establishing or refuting an essential element of the cause of action or a defense advanced by the parties. *Kendall v. Hoover Co.*, 751 F.2d 171, 174 (6th Cir.1984). A dispute over a material fact is genuine "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Anderson v. Liberty Lobby, Inc*., 477 U.S.

242, 248 (1986).[1] Accordingly, when a reasonable jury could not find that the nonmoving party is entitled to a verdict, there is no genuine issue for trial and summary judgment is appropriate. *Id*.; *Feliciano v. City of Cleveland*, 988 F.2d 649, 654 (6th Cir.1993).

Once the moving party carries the initial burden of demonstrating that there are no genuine issues of material fact in dispute, the burden shifts to the nonmoving party to present specific facts to prove that there is a genuine issue for trial. *Anderson*, 477 U.S. at 256. To create a genuine issue of material fact, the nonmoving party must present more than just some evidence of a disputed issue. *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp*., 475 U.S. 574, 586-87 (1986). As the United States Supreme Court has stated, "there is no issue for trial unless there is sufficient evidence favoring the nonmoving party for a jury to return a verdict for that party. If the [nonmoving party's] evidence is merely colorable, or is not significantly probative, summary judgment may be granted." *Anderson*, 477 U.S. at 249-50 (citations omitted); *see Celotex*, 477 U.S. at 322-23; *Matsushita*, 475 U.S. at 586-87.

Consequently, the nonmoving party must do more than raise some doubt as to the existence of a fact; the nonmoving party must produce evidence that would be sufficient to require submission of the issue to the jury. "The mere existence of a scintilla of evidence in support of the plaintiff's position will be insufficient; there must be evidence on which the jury could reasonably find for the plaintiff." *Anderson*, 477 U.S. at 252; *see Cox v. Ky. Dep't of Transp*., 53 F.3d 146, 150 (6th Cir.1995).

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[1] No jury demand has been filed in this case, and the Court will sit as the trier of fact. But "[t]he standard for summary judgment will be the same for cases where the judge sits as finder of fact." *Josey v. John R. Hollingsworth Corp*., 996 F. 2d 632, 637 (3d Cir. 1993).

FACTS

I. Manufacturing Wire

A. Manufacturing Springs

The evidence indicates that the combined processes of manufacturing steel wire, and then of manufacturing springs from that wire, include five main stages that are relevant to this motion. Amstek did not itself manufacture the wire it sold to Wallbank, but instead purchased it from a Korean mill known as KIS. The first steps of the manufacturing process therefore took place at KIS's facility. The initial step is known as "austenitizing." This is a process whereby raw steel is heated to temperatures of approximately 850 degrees Celsius, in order to transform its internal microstructures into austenite. Austenite itself is not a desirable component of steel wire, but it can be further transformed into martensite, which *is* such a component. The second step, known as "quenching," is designed to induce this transformation. Because austenite cannot normally exist at room temperature, as the wire cools after the austenitizing process its microstructures will transform once again. If the cooling occurs rapidly enough, the austenite will become untempered martensite. During the quenching stage, the austenitized steel is immersed in oil or water in order to cause this rapid cooling. The third stage is "tempering," in which the wire is heated once again to convert the untempered martensite into the less-brittle tempered martensite.

At this point the wire is ready for shipping to Wallbank for further processing into springs. At Wallbank's facility, the final two crucial steps occur. The fourth stage is the coiling of the wire into springs. As a result of this process, the steel on the outside edges of the new spring is stretched, while the insides of the coil are compressed. This creates mechanical stresses on the spring that must be relieved by the fifth step, known as "stress

relieving."[2] The stress relieving process used by many spring manufacturers, and the one contemplated by the GM186M spec that Wallbank required its wire to conform to, involves baking the new springs in an oven for at least half an hour. GM186M, docket no. 81-13, § 6. PJ Wallbank Springs had used a system of this type in the 1970s, in which its springs appear to have been passed through ovens on conveyor belts, but Wallbank had experienced significant difficulties with springs becoming tangled together on the belts. Dep. of Melvyn Wallbank, docket no. 85-5, pp. 43-44. As a result, Melvyn Wallbank, who is now the President and CEO of PJ Wallbank and apparently was employed by the company at that time, developed a new stress relieving process for his company based on a technique that had recently been covered in the industry press, whereby springs were stress relieved by having an electrical current passed through them. Decl. of Melvyn Wallbank, docket no. 85-3, ¶ 8. In Wallbank's process, an electrical current is applied to the springs for approximately 3 seconds. Dep. of Brian M. Lopossa, docket no. 93-3, p. 94. Wallbank's target was to heat the springs to approximately 800 degrees Fahrenheit. Expert report of Dr. George Krauss, docket no. 54, p. 10. It is undisputed, however, that only the coils in the middle of the spring actually reached this temperature. *Id.* The springtips reached a significantly lower temperature. The only testimony in the record indicates that this temperature was 350 degrees Fahrenheit, *see* dep. of Arthur Griebel, docket no. 35-3, p. 94.[3]

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[2] It appears that this step is also sometimes referred to as "tempering." In order to distinguish it from the other tempering that the evidence indicates occurs after quenching, the Court will refer to the post-coiling procedure as "stress relief."

[3] In its order on Amstek's previous summary judgment motions, the Court noted some confusion over whether Mr. Griebel had intended to state the temperature in degrees Fahrenheit or Celsius. *See* Opinion and Order of May 4th, docket no. 94, p. 11 n.5. It is not relevant to this motion whether the difference in temperature between the center coils and the spring tips was 550° C or only some 135 degrees (as it would be if the tip

After the spring has been formed and stress-relieved, Wallbank proceeds to insert them into its springpacks and other parts. Only one stage of this process is relevant here: at some point a metal object known as a "bayonet tab" is inserted into one end of the spring. *See* Stork CRS Report No. S-13674, docket no. 81-8, p. 9 fig. 2. The purpose of this tab is neither relevant to this motion nor revealed in the record. What *is* relevant is its effect on the spring: it appears that the insertion of the tab places a significant amount of stress on the last coil of the spring, which is where the breakages at issue in this case occurred.

II. <u>Spring Breakages</u>

One of the uses for Wallbank's springs is in automobile transmissions; in this capacity it sold many transmission springpacks to Allison Transmission ("Allison"), which at the time of the incident here in question was a division of General Motors. In late June of 2006, Allison reported finding broken springs in the transmission springpacks shipped to it by Wallbank. Based on these breakages, Allison ultimately "rejected approximately 93,761 spring packs." Docket no. 81-7, p. 8. "[M]ost or all of these parts" were eventually returned to Wallbank. *Id.* The record indicates that the returned parts still had their Wallbank barcodes on them, which would have permitted Wallbank to identify the date or dates the springs were manufactured. Dep. of Walter Piontkowski, docket no. 93-4, p. 148. But there is no record that any specific dating of this type was ever performed.[4] *Id.* Based on

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temperature were 350° *Celsius*). The important fact -- undisputed -- is that a temperature gradient existed.

[4] In an apparent attempt to evidence these facts, Wallbank has attached the declarations of two of its employees to its response to the instant motion. Decl. of Troy Roberts, docket no. 86; decl. of Walter Piontkowski, docket no 86-2. Mr. Robertson declares, that "[o]n or about June 23, 2006, Allison Transmission ('Allison') notified Wallbank that it had experienced spring breakages for part 29542191. From information provided by Allison and review of Wallbank's wire logs, Wallbank determined the parts had

the ship date of the defective springs, however, Wallbank did identify a range of dates during which they must have been manufactured. *Id*. Wallbank's records indicated that on those dates, springs of the type that was eventually discovered broken had definitely been manufactured with KIS wire. *Id.* pp. 145-49. The evidence is somewhat equivocal as to whether wire from another manufacturer had also been used to produce the same type of springs during that period. *Id.*

This was not the first time some of Wallbank's springs had broken. Amstek has adduced, under seal, a memorandum created by Wallbank employee Walter Piontkowski, cataloging a number of apparently minor complaints that Wallbank received from customers who had found broken springs at their plants. Dep. of Walter Piontkowski, docket no. 85-8, pp. 85-86. This memorandum reveals a number of such incidents between 2004 and June of 2006. With one exception, each incident involved springs that were broken at the end coil near where the bayonet tab had been inserted. *Id.* at 91; Memorandum of Wire Breakages, docket no. 82. The memorandum includes the number of broken parts for most but not all of its entries; those numbers range from a single broken spring to 18 broken springs. Memorandum of Wire Breakages, docket no. 82.

The broken springs at Allison were discovered and communicated to Wallbank in late June of 2006. There is no evidence in the record as to the exactly, or even roughly, how many springs were found broken. According to Melvyn Wallbank, though, the previous problems with broken springs had been "incidental events, troubling but incidental events,"

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been made from Kiswire." Decl. of Troy Roberts at ¶ 2. Piontkowski states that "[w]hen GM and Allison Transmission reported spring breakages for part 29542191, I reviewed our system and determined the parts had been made from Kiswire." Decl. of Walter Piontkowski at ¶ 2. Amstek offers several objections to the admissibility of these statements, some of which seem to the Court to be potentially meritorious. Because the Court concludes that a question of fact exists even without these statements, however, no decision on those issues is necessary at this time.

whereas the June 2006 breakage at Allison "was like over the cliff free-fall." Dep. of Melvyn John Wallbank, docket no. 85-5, p. 292. After Allison concluded that only KIS wire was involved in the breakage, it instructed Wallbank to discontinue its use of KIS wire. Wallbank did so, and after this "experienced virtually no broken springs on part 42191," which had been causing the problems before. Supp. Decl. of Melvyn Wallbank, docket no. 87-2, ¶ 3. Specifically, Wallbank observed a total of two broken springs on part 42191 between August 21st and September 20th, 2006. *Id.*

Between September and November of 2006, despite having discontinued its use of KIS wire, Wallbank did experience some additional broken springs. Wallbank had been experiencing a different problem known as "spring disengagement," in which the springs were not, or did not remain, physically attached to other parts of the springpack assembly. Wallbank hired a company known as "Fasttek" to study how this problem might be corrected.[5] One of Fasttek's recommendations was to decrease the diameter of the end coil of the springs, in order to create a tighter fit. *Id.* ¶ 5. Predictably, this made the end coil of the spring more susceptible to breaking. *Id.* ¶¶ 5-6; e-mail from Ram Adaikappan, Oct. 12, 2006, docket no. 81-5, p. 3; dep. of Melvyn John Wallbank, docket no. 85-5, pp. 290-91. Correspondence from Fasttek to Wallbank, however, indicates that Fasttek suspected that at least some of the disengagements were actually caused by spring breakages. E-mail from Ram Adaikappan, Oct. 10, 2006, docket no. 81-5, p. 2. In any event, between September 21st and November 20th, 2006, Wallbank found 20 more broken springs, out of 368,028 parts produced, *id.* ¶ 5, which Melvyn Wallbank describes as "statistically insignificant" compared to the problems it experienced with the broken springs at Allison, *id.* ¶ 6. After switching to yet another wire supplier on November 21st,

[5] Fasttek's full name is not disclosed in the record.

2006, and through at least April 15th, 2009, Wallbank experienced no further spring breakages on part 42191. *Id.* ¶ 7.

III. Testing After the Allison Breakage Event

In response to breakage at Allison's facility in June of 2006, Wallbank and Allison engaged in extensive testing of wire from various manufacturers. Allison sent a group of engineers known as a "Red X Team," which was charged with identifying whether the problem causing the breakage was in the material or was occurring at some specific point in Wallbank's manufacturing process. The Red X Team did not attempt to build any kind of theoretical model of what was wrong with the wire or springs, but instead focused on empirically identifying which material or process was causing the problem, and finding a replacement for that element that would work better.

In that regard, the Red X Team's undisputed finding was that the breakage occurred only on springs that were made from KIS wire. *See* Dep. Of Walter Piontkowski, docket no. 81-3, p. 119 ("In all the testing that [the Red X Team] did, the KIS wire would break, the Mount Joy didn't."), *id.*; dep. of Brian M. Lopossa, docket no. 85-4, p.117 ("[W]e did a random test versus Mount Joy and KIS material, same setup. We just ran them in a random order, and it always followed the KIS material. So that's why we then deselected that and we went toward the supplier."); *id.* at 119 ("[W]e made springs . . . at 800 degrees for 2.8 seconds dwell time. The KIS material, we had 16 good and 74 bad."[6] "The Joy, we had 100 good with 0 bad."); *id.* at157 ("KIS wire before was the one that was breaking. We didn't know what was causing it."); *id.* at 223-36; *id.*, docket no. 93-3, p. 86 ("KIS broke;

[6] Because these tests were done after manipulating the coiling process in various ways, including by decreasing the diameter of the end coil to increase the tension on the spring, this ratio likely is not indicative of the proportion of springs actually delivered to Allison that eventually broke, and the Court considers it only as qualitative evidence that testing revealed a tendency toward breakage in the KIS wire.

Mount Joy did not break."). From this testing, Allison and Wallbank "infer[red]" that it was springs made from KIS wire that had been breaking at Allison's plant, dep. of Walter Piontkowski, docket no. 81-3, p. 121, and Allison directed Wallbank not to use any more KIS wire in making springs for Allison, dep. of Brian M. Lopossa, docket no. 85-4, pp. 156-57.

Wallbank does not dispute, however, that even with springs made from KIS wire the Red X Team was able to eliminate the breakage problem by using an oven for stress relief instead of Wallbank's electrical resistance technique. Dep. of Melvyn Wallbank, docket no. 81-6, pp. 126-29, 247; dep. of Brian M. Lopossa, docket no. 85-4, pp. 114, 120; dep. of Walter Piontkowski, docket no. 81-3, pp. 170-73; Dep. of Larry Witte, docket no. 93-6, p. 32 ("When they tempered the entire spring in an oven at 800, they could bend it, it did not have the fracture behavior."); Stork CRS Report No. S-13674, docket no. 81-8, p. 4: ("PJ Wallbank Springs formed springs from the ‘Bad' KIS wire but did not temper the springs. None of the springs cracked after insertion of the bayonet tips.") Thus, the testing conducted by Wallbank and Allison's Red X Team revealed that springs made from wire in Wallbank's facility broke only if (1) made out of KIS wire and (2) subjected to Walbank's electrical resistance stress relieving process.

It is also undisputed that no testing was done on any of the springs that had actually been shipped to Allison, or even on springs made from the same reels but not shipped to Allison. Dep. of Walter Piontkowski, docket no. 81-3, p. 165; Dep. of Melvyn John Wallbank, docket no. 81-6, p. 121. Instead, the KIS wire used in the Red X Team’s testing was taken from two or three other reels of .0625" wire, out of the many that Wallbank had on hand. Dep. of Walter Piontkowski, docket no. 81-3. pp. 121, 164; dep. of Melvyn John Wallbank, docket no. 81-6, pp. 121-22. It appears based on other documentation in the

record that the KIS heat numbers of the reels tested by Wallbank were 29205-7, 26920-2, and 37901-2. Letter from Walter Piontkowski to Charles Stevens, Aug. 10, 2006, docket no. 93-5, p. 11. Other testing arranged for by Wallbank, including testing performed by KIS on samples provided by Wallbank, was also done on these test reels and possibly a very small number of others. J.Y. Choi, Analysis Report of 0.0625" OT CrSi wire Breakage for PJ Wallbank, docket no. 86-7, p. 1; J.Y. Choi, Additional Analysis Report of 0.0625" OT CrSi Breakage at PJ Wallbank, docket no. 86-9, pp. 3-5; Arthur H. Griebel, Stork CRS Report No. S-13674, docket no. 38-4, pp. 7-8; Retained Austenite (RA) Evaluation, docket no. 48-9, *passim*; Expert Report of Dr. George Krauss, docket no. 54, pp. 8-9. As Wallbank has since sold for scrap all the suspect springs that were returned to it by Amstek, dep. of Walter Piontkowski, docket no. 81-3, p. 165, it is too late now for any such tests to be conducted on those springs.

ANALYSIS

I. Lack of Evidence as to Characteristics of Springs Broken at Allison

Based on this record, Amstek notes that Wallbank has no direct proof (1) that it was Amstek-delivered springs that broke at Allison and consequently caused Wallbank damages, or (2) that the physical characteristics of the broken springs did not conform to the contractual requirements. Instead, Wallbank's evidence is that *other* KIS wire both was potentially nonconforming and tended to break when run through Wallbank's manufacturing processes.

It is true that there is no evidence in the record that any testing was done to ascertain the physical characteristics of the springs that actually broke at Allison, or of any wire from the reels from which those springs were made. In the Court's view, however, Wallbank *does* have evidence that the springs found broken at Allison were made from KIS wire.

First, it is undisputed that Wallbank was in fact using KIS wire in its plant on at least some of the days when the broken springs were manufactured. Second, there is substantial testimony in the record that after Wallbank *stopped* using KIS wire – at Allison's request – the breakages also stopped.

Allison challenges this second conclusion as untruthful by pointing to records from Wallbank showing that spring breakages were occurring in non-KIS wire both before and after the incident at Allison, and by noting that Wallbank has failed to provide even an estimate of the actual number of springs that broke in that incident. The Court agrees that this omission is somewhat suspect, but concludes that the testimony by Melvyn Wallbank that the Allison breakage was comparatively much greater than previous breakages would permit a reasonable finder of fact to conclude that the problem substantially subsided after Wallbank discontinued the use of KIS wire.[7]

Based on this evidence, a reasonable trier of fact could conclude that it was KIS springs that were breaking at the Allison plant. The evidence would also permit a finding that, when a sampling of the unused wire reels in Wallbank's factory immediately after the breakage at Allison was tested, only the KIS wire was found to have excessive retained

[7] This would be true even if the breakages that occurred after the Allison incident, in September through November of 2006, could not be discounted due to the changes in diameter of the spring end coils that Wallbank was experimenting with at that time. Amstek objects that these breakages should *not* be discounted, because the broken springs that were made from KIS wire also had reduced-diameter end coils. This is wrong for a multitude of reasons. First, it was only during the post-incident testing that the end coil diameter was reduced; there is no evidence that the production parts that broke at Allison had anything other than a standard diameter end coil. Second, the evidence is that a very high portion, up to 60 percent or higher, of reduced-diameter springs made from KIS wire broke in testing. Comparatively, only 20 out of 368,028 reduced-diameter springs broke in the September-to-November period. Third, there is no data in the record as to how much the end coil diameter was reduced, either in the KIS wire testing process or in the later period, and accordingly there is no way to meaningfully compare breakage rates between the two.

austenite, and only the KIS wire broke. In the Court's view, these two conclusions would also permit a reasonable finder of fact to infer that the broken springs made from KIS wire found at Allison's plant had been made from wire with the same deficiencies as the tested wire.

Amstek repeatedly cites *Citizens Ins. Co. v. KIC Chems., Inc.*, No. 04-385, 2007 WL 1238893 (W.D. Mich. Apr. 27, 2007), for the opposite conclusion. In that case, a manufacturer of dried fruit products, had purchased sunflower oil to spray on its fruit before packaging in order to keep the fruit from sticking together. The oil was delivered in June and August of 2001. After receiving complaints from customers in August and November 2001 that the fruit had an oily odor and flavor, the fruit manufacturer arranged for testing of a sample of oil in November of that year. The testing revealed that the iodine and peroxide contents of the oil were above specification. In a suit for breach of contract, the court concluded that "[p]laintiffs have . . . .failed to show that the testing conducted in November (four or five months after acceptance) was actually done on samples from June or August," *id.* at *4, and therefore entered summary judgment in favor of the defendants. *Id.*

Amstek argues that the instant case is indistinguishable from *KIC*, in that it involves one set of goods that caused damages, and another that test results allegedly indicate was defective, but no evidence that the same defect was present in the goods that caused the damages. In the Court's view, however, this similarity is partly superficial. There are two reasons for this. First, there are crucial differences between steel wire and sunflower oil that distinguish this case from *KIC.* Common sense dictates that, as sunflower oil is an organic substance, its qualities can be affected by age, storage temperature, possibly humidity, and any number of other factors that might easily result in significant differences

between two different shipments. By contrast, one would not expect compositional defects in steel wire of the kind alleged here to be caused by such common phenomena. Indeed, there is no evidence in the record that such defects could be caused by anything other than a change in either the raw materials or the processes used in manufacturing the wire. Under these circumstances, testing of the type offered here could support a finding that the broken springs were made from defective wire, even though similar testing on sunflower oil was insufficient in *KIC.*

Second, this case is different from *KIC* in that there was apparently no evidence in that case that the fruit manufacturer had been able to eliminate the customer complaints by discontinuing use of the defendant's sunflower oil. In other words, in *KIC* there was no showing that the problem would not occur if nondefective oil were used. Here, by contrast, Wallbank has shown that the breakage problem stopped, or at a minimum subsided to negligible levels, after it stopped using KIS wire at its customers' express request. This not only tends to show that KIS wire was used in Allison's broken springs, but also that any defect that might be causing *other* broken springs made from KIS wire was also likely the cause of the breakage at Allison. As a result, the rationale of *KIC* does not mandate summary judgment based on the evidence in this case.

In summary, to prevail on any of its claims Wallbank must show (I) that the wire that broke at Allison's plant had been delivered by Amstek, and (ii) that this same wire had some defect that caused it to break. The evidence adduced to date by Wallbank on both of these issues, and particularly on the second one, is far from overwhelming. Nevertheless, the Court is readily able to say that a reasonable trier of fact could find for Wallbank on these issues. Accordingly, summary judgment is not appropriate on these grounds.

II. Viability of Wallbank's Technical Theory of Causation

Amstek next argues that, even assuming that KIS wire did not conform to the contract specifications and was in fact involved in the breakage that occurred at Allison's plant, Wallbank has offered no explanation of how the defects in the wire could have caused the breakage that actually occurred. Amstek purports to bring this argument only against Wallbank's claim for breach of an implied warranty of merchantability. But under Michigan law, a plaintiff cannot recover on either a contract or an implied-warranty claim without proof that the breach caused the plaintiff damages. *Alan Custom Homes, Inc. v. Krol*, 256 Mich. App. 505, 512 (2003) (contract); *Piercefield v. Remington Arms Co.*, 375 Mich. 85, 96 (1965) (implied warranty); *Hollister v. Dayton Hudson Corp.*, 201 F. 3d 731, 737 (6th Cir. 2000) (applying Michigan law and citing *PIercefield*).[8] Accordingly, Amstek's scientific objections to Wallbank's theory of causation go to the viability of all of Wallbank's remaining claims.

A. Wallbank's Theory

Wallbank claims that the springs in question broke because of a defect in the steel known as "quench embrittlement," which may have been aggravated by another phenomenon known as stress-induced austenite transformation. It advances these claims by way of its expert witness, Dr. George Krauss, whose expert report and declaration appear on the docket at entries 54 and 87-6. The following statement of Krauss's theories is derived from those documents.[9] According to Krauss, the root cause of both the quench

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[8] *Piercefield* was a products-liability case, as was *Hollister* and many others of its progeny. But the Court does not doubt that a similar element of causation is a component of all implied-warranty claims.

[9] The Court acknowledges the presence in the record of other statements by Dr. Krauss, but finds his report and declaration sufficient to flesh out his opinions.

embrittlement and the stress-induced austenite transformation experienced by the springs made from KIS wire was the excessive heat that Wallbank alleges was used by KIS in its austenitizing ovens. Krauss states that the heat of the austenitizing process causes some of the carbides present in the pre-austenitized steel to dissolve, which releases the carbon molecules that previously were components of the carbides. If the austenitizing temperature is too high, the carbides will melt completely, releasing an undesirably high number of carbon molecules. These excess carbon molecules will tend to congregate along the boundaries of the austenite grains, and remain there even after some of the austenite transforms to martensite. The result is quench embrittlement -- a higher susceptibility to breakage along the grain boundaries, which is caused by this carbon buildup.

According to Krauss, the presence of these carbon molecules also has detrimental effects on the remainder of the spring-manufacturing procses. Specifically, austenite with a higher carbon content will not begin transforming to martensite until it reaches a lower quenching temperature than lower-carbon austenite would require for a similar transformation, with the result that in steel with high-carbon austenite, more retained austenite is left once the quench is complete. This austenite is what leads to stress-induced austenite transformation. Krauss states that this phenomenon occurs when high retained-austenite steel is coiled into a spring. The mechanical stresses of the coiling cause the austenite to transform to untempered martensite. Because untempered martensite is less dense than austenite, this transformation results in an increase of volume in the portions of the spring subjected to the coiling stresses, thus adding to the stress on the spring. When the newly-made spring is run through a stress relieving process, Krauss claims that the presence of this untempered martensite causes a phenomenon known as

transition carbide precipitation, which reduces the volume of the martensite and thus acts to increase rather than reduce the stresses on the steel. In this way, although he does not explicitly say so, it appears that Krauss's position is that when applied to springs with excessive pre-coiling retained austenite levels, the stress relieving process will actually backfire in some measure, and increase rather than reduce the stresses on the spring.

B. Amstek's Objections; Analysis

Amstek lodges essentially four objections to the applicability of this theory to the facts of this case. One of the objections is that the evidence indicates that the wire was *not* excessively austenitized, as Krauss maintains. The Court has already considered these arguments in connection with Wallbank's motion for reconsideration of the Court's order on Amstek's first summary judgment motion. There, the Court concluded that genuine questions of fact remain as to whether the wire was properly austenitzed. The Court will not revisit that conclusion here.

Amstek also objects that quench embrittlement would not explain why Wallbank's broken springs fractured only near their tips, and not at random locations throughout the springs. There appears to be no dispute that when quench embrittlement occurs in a length of wire, it weakens the entire wire and not just the tips. The record clearly suggests, however, that the springs in question here broke near their tips because the insertion of the bayonet tab at the end of the spring placed extra stress on the end coil. Stork CRS Report No. S-13674, docket no. 81-8, pp. 2-4; *id.* p. 9 fig. 2; Dep. of Melvyn John Wallbank, docket no. 81-6, p. 247. In fact, there is testimony that in testing, three quarters of the observed spring fractures occurred when the bayonet tab was inserted. Dep. of Brian M. Lopossa, docket no. 93-3, p. 220. Further, the snap-ring pliers test that actually resulted in much of the other breakage during testing was intended to simulate the insertion of a bayonet tab.

Id. p. 98; dep. of Walter Piontkowski, docket no. 93-4, p. 172. Accordingly, it makes perfect sense that most of the fractures would be near this top coil, and the Court does not find the physical placement of the breakages on Wallbank's springs to be an insuperable obstacle to its theory of quench embrittlement.

Another of Amstek's objections is that the presence of silicon in the KIS wire should have retarded the formation of the cementites that cause quench embrittlement. It bases this argument on statements in Krauss's expert report. In his expert report and again in his more recent declaration, Krauss considers and rejects another form of embrittlement, known as tempered martensite embrittlement ("TME"), as a possible cause of the breakage. Expert Report of Dr. George Krauss ("Krauss report"), docket no. 54, p. 6; decl. of Dr. George Krauss ("Krauss decl."), docket no. 87-6, ¶ 13. Krauss appears to state that TME is caused by the formation of excessive amounts of cementite during the tempering process. Krauss report at 6; Krauss decl. at ¶ 13. Silicon retards cementite formation, thus preventing TME from occurring in all but the hottest tempering processes. Krauss report at 6; Krauss decl. at ¶ 13. Dr. Krauss notes that the KIS wire contains appreciable quantities of silicon, and concludes that the presence of this silicon would have prevented TME from occurring in the wire. Krauss report at 6; Krauss decl. at ¶ 13.[10]

Amstek seizes on these statements, arguing that if silicon can prevent TME by inhibiting cementite formation, it must also prevent quench embrittlement in the same way. The differences between Krauss's respective accounts of how TME and quench

[10] In Amstek's previous motion for summary judgment, the Court held that Wallbank had raised a question of fact as to whether the breakage in its springs had been caused by tempered martensite embrittlement. Opinion and Order of May 4th, 2009, docket no. 94, pp. 18-19. On this motion, Wallbank has adopted Krauss's conclusions and abandoned this position. Response brief, docket no. 85, p. 17 n.3. Accordingly, Wallbank now relies solely on a combination of quench embrittlement and stress-induced austenite transformation as the cause of the breakage.

embrittlement occur, however, lead the Court to give scant weight to this argument. According to Krauss, TME occurs during the tempering process, whereas quench embrittlement occurs earlier, during the austenitizing and quenching stages of manufacture. Thus, in the absence of any evidence to the contrary, a reasonable finder of fact could easily conclude that silicon is capable of retarding cementite formation during tempering but not during quenching or austenitizing, thus explaining how it could prevent TME but not quench embrittlement.

Amstek's remaining objection is more serious. It notes that according to Dr. Krauss's own voluminous writings on the topic, a basic characteristic of quench embrittlement is that it occurs during the austenitizing and quenching processes, without any tempering and certainly before the wire is coiled into a spring or otherwise shaped. Indeed, one of Krauss's own articles defines quench embrittlement as "the susceptibility to intergranular fracture in as-quenched and low-temperature tempered high-carbon steels due to cementite formation." A. Reguly, G. Krauss, et al., *Quench Embrittlement of Hardened 5160 Steel as a Function of Austenitizing Temperature*, Metallurgical and Materials Transactions A, Jan. 2004, docket no. 74-15, p. 153. The introductory material of the same article explains that

> Under tensile or bending stress states, the higher carbon steels are highly susceptible to intergranular fracture in both the as-quenched condition and after tempering at low temperatures generally considered to be safe from embrittlement phenomena. In view of the fact that tempering is not required to render the microstructure susceptible to intergranular fracture, the latter embrittlement phenomenon is referred to as quench embrittlement.

Id. Similarly, a textbook authored by Dr. Krauss states, in the first sentence of its section on quench embrittlement, that "[t]he conditions for *quench embrittlement* . . . . develop in high-carbon steels during austenitizing or during quenching; tempering is not required."

George Krauss, *Steels: Processing, Structure, and Performance*, at 390 (2005). Krauss's declaration submitted in this litigation confirms this by stating that

> [q]uench embrittlement develops during austenitizing when carbon in austenite segregates to austenite grain boundaries and creates, together with the segregation of phosphorous if present, the conditions for brittle intergranular fracture along the prior austenite grain boundaries after quenching to martensite and tempering at temperatures below those in a silicon-containing steel that would procedure tempered martensite embrittlement.

Decl. of Dr. George Krauss, docket no. 87-6, ¶ 15.

Given this characteristic of quench embrittlement, Amstek questions how it could possibly have been the cause of the breakage in this case, which undisputedly occurred only *after* the KIS wire had been formed into springs and stress relieved with electrical resistance. To put it differently, Amstek asks how an embrittlement phenomenon that is supposed to be present as soon as quenching is completed could fail to result in breakage (1) during the spring coiling process, (2) under snap-ring pliers testing conducted after the coiling process but before stress relief, and (3) during pliers testing even after both coiling and stress relief by oven baking.

Krauss's response, as offered by Wallbank, is somewhat incomplete. Although Krauss does not use the term "stress induced austenite transformation" in the relevant declaration, *see* docket no. 87-6, it appears to be his position that quench embrittlement alone would not have rendered the wire weak enough to break during the coiling or pliers testing processes, but that only the added stresses of coiling and stress relief in wire with excessive austenite -- that is, stress-induced austenite transformation -- would lead to breakage.

On its face, this explanation contains nothing that would require a reasonable trier of fact to reject it. Adopting such a theory would mean believing Krauss's implication that

process called "stress relieving" actually *increases* the stresses in some kinds of wire, and one would ordinarily expect this sort of counterintuitive result to be addressed somewhat more squarely than it is in the materials submitted from Dr. Krauss. Nevertheless, neither Krauss nor Wallbank is maintaining that stress relief results in embrittlement in all or even most wire. Instead, their position is that it exacerbates embrittlement only in wire that contains defectively high levels of retained austenite. This is not inherently implausible.

More seriously, however, Krauss's theory would fail to predict the results that were actually observed in this case. In particular, Krauss appears to state that *any* kind of stress relief process will cause transition carbide precipitation in the martensite created when a high-austenite wire is coiled into a spring, with the resultant tension making the difference between breakage and non-breakage in the spring. This fails to explain the unanimous testimony of all the witnesses involved that springs made from KIS wire did *not* break when stress-relieved in an oven, although they did break when subjected to electrical resistance stress relief. In fact, it is undisputed that the electrical resistance tempering process heats the spring ends -- the areas where the breakage occurred -- to a temperature significantly lower that of the spring center, and below the oven temperature in the alternative stress relief process. Accordingly, as it is stated in the record, Krauss's theory might lead one to expect that oven stress-relief would cause *more* contraction of the martensite at the springtips, and thus lead to more embrittlement, than would electrical resistance tempering. In fact, the observed facts were more consistent with the opposite result.

This discrepancy between the predictions of Wallbank's theory of causation and the observed behavior of the wire in question is undoubtedly a very serious weakness in Wallbank's case. The Court is unwilling, however, to conclude that it would completely prevent a reasonable finder of fact from returning a verdict for Wallbank. Wallbank has

adduced testimony from an expert witness that purports to explain, step by step, how the KIS wire became embrittled. This theory is facially plausible and also would predict the breakage that actually occurred in this case. While it apparently would have also predicted *other* breakage of KIS wire that did not occur here, that breakage is not directly in issue in this action. Accordingly, the Court regards this weakness in Krauss's theory as perhaps damaging but not entirely destroying its ability to establish the causation element of Wallbank's case. Summary judgment is not appropriate on this basis.

MERCHANTABILITY AND ELECTRICAL RESISTANCE STRESS RELIEF

Amstek's final argument goes solely to Wallbank's merchantability claim. Mich. Comp. Laws § 440.2314(2) provides, in relevant part, that in order to be merchantable goods must

> be at least such as
> (a) pass without objection in the trade under the contract description; and
> . . .
> (c) are fit for the ordinary purposes for which such goods are used; and
> (d) run, within the variations permitted by the agreement, of even kind, quality and quantity within each unit and among all units involved . . .

Amstek claims that because springs made from KIS wire do not break when stress-relieved in an oven, its wire would "pass without objection in the trade" and would be "fit for the ordinary purposes" for which steel spring wire is used. In contradiction, Wallbank suggests that the sheer volume of its own production of springs should preclude any such finding. Wallbank also appears to argue that the KIS wire was unmerchantable because (1) the retained austenite levels in the production wire were higher than those in the initial samples Amstek had provided to Wallbank, and (2) the retained austenite levels were higher than permitted by the contract.

I. "Pass Without Objection in the Trade" and "Fit for Ordinary Purposes"

To the extent that Wallbank claims that the KIS wire did not "pass without objection in the trade," or was not "fit for the ordinary purposes for which such goods are used," the outcome of this motion turns primarily on just how rare electrical resistance stress relief is in the steel spring trade. Specifically, summary judgment for Amstek will be appropriate if a reasonable finder of fact would be unable to conclude that Wallbank's stress relief process is common enough that steel spring wire that broke in response to such stress relief would be objected to in the trade, or be regarded as unfit for the purpose of making springs.

In this regard, Amstek has adduced evidence that Wallbank is the only user of KIS wire that ever complained about retained austenite levels in its wire, decl. of Sun-Young Lim ("Lim decl."), docket no. 81-11, ¶ 18; decl. of Loren Godfrey ("Godfrey decl."), docket no. 81-12, ¶ 8, and that Amstek's own experts know of no spring maker other than Wallbank that uses electrical resistance, Lim decl. at ¶ 19; Godfrey decl. at ¶ 3. Wallbank, by contrast, notes that it has produced more than five billion springs for the automotive industry since the year 1982, all of which were stress relieved with its electrical resistance process. Decl. of Melvyn Wallbank, docket no. 85-3, ¶ 10. Further, Melvyn Wallbank states that "[e]lectrical resistance stress relieving of spring packs has been the standard method used by the two main suppliers of transmission springpacks in the North American market since it was introduced in the 1970's." *Id.* at ¶ 8. Wallbank also notes that the technique has been the subject of a published article, *see* Richard J. Lesko, *A New Approach in Stress Relieving Springs*, Springs Magazine, May 1974, at 47, docket 85-3 at p. 6, as well as having been patented, *see* U.S. Patent No. 3,935,413 (filed May 30, 1974),

docket no. 85-7. Finally, Wallbank notes that its customers have instructed it not to use KIS wire, and argues that this obviously demonstrates the wire's unmerchantability.

Again, the evidence adduced by Wallbank in support of this claim exhibits serious weaknesses. The Court does not regard the number of springs manufactured by Wallbank, the article and patent on electrical resistance stress relief, or the customer rejections of springs made from KIS wire to be probative of the issue at hand. The article and the patent demonstrate merely that the process existed and was known to some number of experts in the field. They have little or no tendency to show that it was in wide enough use in the trade that wire that was incompatible with it would not satisfy the requirements of § 440.2314. Likewise, without knowing the volume of worldwide production in the trade, a recitation of the number of springs produced by Wallbank does not demonstrate the standard or non-standard nature of its processes. Finally, the undisputed evidence is that if Wallbank had used an oven-heating stress relief process, the springs would not have broken and there would have been no cause for its customers to ask it not to use KIS wire. Thus, the rejections of springs made from KIS wire highlight the importance of the commonness or rarity of electrical resistance stress relief, but they are not helpful in resolving the issue. This leaves only Melvyn Wallbank's statement that the two main suppliers of springpacks in the North American market have used electrical resistance stress relief for more than 30 years. Even this statement is not as clear as it could be: it does not name the two main suppliers, and it fails to provide any sense of the size of the North American transmission springpack market in comparison to the worldwide market for steel springs.[11]

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[11] It is possible that the relevant "trade," for purposes of applying § 440.2314, would be the springpack industry only, rather than the steel-spring industry as a whole. There is, however, simply no evidence in the record on this question. Nor does the record disclose

In this instance, the Court does regard these weaknesses as fatal to Wallbank's claim. On this record, the portion of steel spring production that takes place using electrical resistance, both in North America and worldwide, is simply unknown. Wallbank's evidence does not sufficiently establish this fact, nor does it necessarily contradict Amstek's evidence that Wallbank's process is relatively unique. Accordingly, at a minimum this record would not permit a trier of fact to come to any meaningful conclusion as to whether a spring making process involving electrical resistance stress relief is an ordinary purpose to which steel spring wire is put, or whether wire that was incompatible with that process would pass without objection in the trade. For that reason, insofar as Wallbank's merchantability claim relies on Mich. Comp. Laws § 440.2314(2) (a) and (c), the Court concludes that Wallbank has adduced insufficient evidence to support it, and that summary judgment in favor of Amstek is appropriate.

II. § 440.2314(2)(d)

Wallbank also argues that the wire delivered by Amstek did not "run, within the variations permitted by the agreement," within the meaning of Mich. Comp. Laws § 440.2314(2)(d). Wallbank bases this contention on its suggestion that the initial samples provided by Amstek did not have excessive levels of retained austenite, and on the simple fact that, according to Wallbank, the level of retained austenite in the KIS wire was in fact *not* "within the variations permitted by the agreement."

Amstek correctly notes that the first of these arguments is really an attempt to resurrect Wallbank's express warranty claim, on which the Court has already granted

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any reason to doubt that all steel springs must be stress relieved in some way, since they all obviously are exposed to coiling stresses. As a result, no reasonable finder of fact could find on this record that transmission springs are so different from other steel springs that their manufacture constitutes its own "trade."

summary judgment. The Court's earlier decision was based on Wallbank's failure to adduce any evidence whatsoever as to the characteristics of the initial samples provided by Amstek. Opinion and Order of May 4th, 2009, docket no. 94, pp. 33-34. There is no evidence to suggest that every spring made from high-austenite steel broke after electrical resistance stress relief; in fact it appears that a substantial number did not. Therefore, even if the initial samples did not break, as Wallbank suggests, this is not probative of whether the production wire delivered by Amstek had different technical characteristics. The Court accordingly finds no reason to revisit its earlier conclusion on this issue.

Wallbank's other argument is that since Mich. Comp. Laws § 440.2314(2)(d) requires that merchantable goods must "run, within the variations permitted by the agreement, of even kind, quality and quantity within each unit and among all units involved," then Amstek's wire was not within the variations permitted by the agreement with respect to its retained austenite levels; and so Amstek accordingly breached the implied warranty of merchantability.[12] It appears, then, that Wallbank's position is that the delivery of goods that do not conform to the contract specifications for their physical characteristics would create *per se* liability both on the contract and for breach of an implied warranty of merchantability.

It is not clear to the Court what advantage there might be to giving two different legal names to a single theory of recovery. Nevertheless, the facial meaning of the "within the variations permitted by the agreement" language in § 440.2314 does indicate that the parties may contract for a different range of variations than would otherwise be required by the implied warranty of merchantability, and that the violation of such a contractual

[12] Wallbank does *not* argue that the variations in retained austenite levels from one reel of KIS wire to another violated the implied warranty of merchantability, and the Court therefore will not decide whether such a claim would be viable.

provision would also violate the warranty. The official comments to § 2-314 of the Uniform Commercial Code, of which Mich. Comp. Laws § 440.2314 is an enactment, suggest as much. Uniform Commercial Code, § 2-314 cmt. 11 ("within the variations" language is a "reminder" that usages of trade often "permit substantial variations" in the quality of goods). At least one other court has apparently adopted a theory similar to the one advanced here by Wallbank. *See Custom Decorative Moldings, Inc. v. Innovative Plastics Tech., Inc.*, no. Civ-A-17592, 2000 WL 1273301, at *6 (Del. Ch. Aug. 30, 2000). Accordingly, the Court will permit Wallbank to proceed with its merchantability claim, only on the basis of Mich. Comp. Laws § 440.2314(2)(d), and only insofar as it claims that the wire delivered by Amstek was physically out of conformity with the technical specifications of the contract between the two.

CONCLUSION AND ORDER

Although its evidence shows substantial weaknesses, Wallbank has raised questions of fact as to whether the wire that broke at Allison's facility was KIS wire, whether it contained excessive levels of retained austenite, and whether such a defect could have caused the breakage observed in this case. On the other hand, Wallbank has failed to adduce evidence that would permit the trier of fact to conclude that its processes for manufacturing springs are an "ordinary use" to which steel spring wire is put, or that wire that failed when subjected to those processes would be objected to in the trade.

WHEREFORE, it is hereby **ORDERED** that defendant's motion for summary judgment is **GRANTED IN PART**, with respect to Count II of the Complaint (breach of implied warranty), except insofar as plaintiff asserts that the wire's physical nonconformity with contract specifications also amounted to a breach of an implied warrant of merchantability.

Insofar as the motion has been granted, Count II is **DISMISSED WITH PREJUDICE.** The motion is **DENIED IN PART**, with respect to all remaining counts.

SO ORDERED.

s/Stephen J. Murphy, III
STEPHEN J. MURPHY, III
United States District Judge

Dated: July 22, 2009

I hereby certify that a copy of the foregoing document was served upon the parties and/or counsel of record on July 22, 2009, by electronic and/or ordinary mail.

Alissa Greer
Case Manager